AMENDMENT

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A nano-twin copper material with ultrahigh strength and high electrical conductivity ~~was composed of~~ comprising roughly equiaxed submicron-sized grains, inside each grain, there ~~are high density of growth in~~ twin lamellae with different orientations and high density; and the twin lamellae with the same orientations are inter-parallel; ~~The twin spacing ranges~~ the thickness of the twin lamellae range from several nanometers to 100 nm; and the lengths from 100-500 nm.

2. (Currently amended) The nano-twin copper material with ultrahigh strength and high electrical conductivity according to ~~the~~ claim 1, ~~characterized in that it~~ wherein the nano-twin copper material has, at a temperature of 293 K, a ~~the following properties:~~ density of 8.93 ± 0.03 g/cm^3, a purity of 99.997 ± 0.02 at%, a yield strength of 900 ± 10 MPa, an ~~and~~ elongation of $13.5 \pm 0.5\%$, a ~~at room temperature at~~ tensile strain rate of 6×10^{-3}/s, an electrical resistivity ~~at room temperature (293 K)~~ of $(1.75 \pm 0.02) \times 10^{-8}$ Ω·m, ~~the~~ and a temperature coefficient of resistivity of 6.78×10^{-11} K^{-1}.

3. (Currently amended) The nano-twin copper material with ultrahigh strength and high electrical conductivity according to ~~the~~ claim 1, ~~characterized in that~~ wherein the ~~said submicron grain sizes~~ size of the grains range from 300-1000 nm.

4. (Currently amended) A method for producing a nano-twin copper material with ultrahigh strength and high electrical conductivity according to ~~the~~ claim 1, ~~characterized in that~~ which comprises

performing ~~the~~ electrodeposition ~~technique is used,~~ using an electron purity grade $CuSO_4$ solution having a pH of 0.5-1.5 ~~is selected as electrolyte with the addition of~~ and ion-exchanged water or distilled water as the electrolyte, ~~pH of the said electrolyte is 0.5-1.5, anode is~~ 99.99%

pure Cu sheet as the anode, ~~and cathode is~~ an iron sheet or a low carbon steel sheet with surface plated by a Ni-P amorphous layer as the cathode; and an additive comprising 0.02-0.2 mL/L gelatine aqueous solution with concentration of 5-25% and 0.2-1.0 mL/L high-purity NaCl aqueous solution with concentration of 5-25%;

~~The said pulsed~~ with ~~electrodeposition technique parameters comprise:~~ a pulse current density of 40~100 A/cm^2; an on-time (t_{on}) of 0.01~0.05s and an off-time (t_{off}) of 1~3s; ~~the~~ a distance of 50~100 mm between the anode and the cathode of ~~50~100mm~~, ~~the~~ and an anode to cathode area ratio of 30~50:1~~anode and cathode of (30~50):1~~; and

electromagnetically stirring at a ~~electrolyte~~ temperature of 15~30 °C~~; electrolyte in electromagnetic stirring; Additive is a combination of 0.02-0.2 mL/L gelatine aqueous solution with concentration of 5-25% and 0.2-1.0 mL/L high-purity NaCl aqueous solution with concentration of 5-25%~~.